

51. On some New South African Permian Reptiles*.

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(Plates LXII. & LXIII.†)

Of the following new fossil reptiles a number have been discovered by the Rev. J. H. Whaits of Beaufort West, a most enthusiastic and successful collector. The others have been found by myself. Though none of the species described represent any strikingly new types, the series forms an important addition to our knowledge of the Permian Fauna.

Suborder DINOCEPHALIA.

MOSCHOPS CAPENSIS, gen. et sp. n. (Pl. LXII. fig. 1.)

This important new genus was discovered by Mr. Whaits and myself on the farm Spitzkop in the Moordenaar's Karroo. Remains of a number of skeletons were discovered scattered over and imbedded in an alluvial deposit about a rood in extent. Though the remains were for the most part fragmentary and weathered, and so completely mixed up that it is practically impossible to pick out the bones belonging to any one individual, this matters the less seeing that all the skeletons appear to belong to one species. There is considerable difference in size of the bones, but I think there is reason to believe that this may be accounted for by assuming that the small herd which perished together comprised males, females, and immature animals. As portions of thirteen thigh bones have been discovered, there must have been at least seven individuals.

Owing to the scattered condition of the remains it is impossible to reconstruct the manus and pes and to give the exact number of the pre-sacral and caudal vertebræ, but with these exceptions every detail of the skeleton is known. I hope shortly to give a full description of the remains in a monograph on the Dinocephalia. In the present paper I shall merely give a preliminary description of the skull.

The skull, which I figure and which may be regarded as the type, is, I believe, that of a young female. The left side is much weathered and the whole skull considerably crushed, especially in the occipital region, but otherwise the skull may be regarded as nearly perfect. The greatest length of the skull is 345 mm., and from the occipital condyle to the front of the snout 290 mm.

This new animal resembles *Delphinognathus conocephalus* Seeley so closely, that it was only after very deliberate consideration that I decided to place it in a new genus. That it is specifically

* On p. 1079 Dr. Broom proposes two new generic names, viz., *Aretosuchus* and *Arctognathus*.—EDITOR.

† For explanation of the Plates see p. 1082.

distinct is beyond question, and the marked difference in the temporal region seems to me of sufficient importance to justify the formation of a new genus for its reception.

The nasal region makes with the line of the teeth a sharp angle of about 45° , and the snout is moderately broad. The premaxillaries are small and each carried three teeth.

The maxillary is moderately large and flat and carried 12 teeth, of which the first four are large and may be regarded as canines. The septo-maxillary is a small bone which forms the lower wall of the nostril, and passes backwards a short distance, separating the nasal from the maxilla.

The nasals are fairly large rounded bones which are separated from each other at the lower part by the internasal processes of the premaxillaries.

The orbit is large and round, protected above by a marked thickening of the supraorbital border and behind by a strong postorbital arch. The bones surrounding the orbit appear to be very similar to those of *Delphinognathus* and *Tapinocephalus*, though the limits of the prefrontal have not been clearly made out. The lachrymal foramen is large and opens on the face. The jugal forms the lower border of the orbit. It is a flat and relatively slender bone which passes back to meet the squamosal and the quadrato-jugal.

The quadrato-jugal is a small bone which rests on the descending process of the squamosal and on the quadrate. It does not as in *Delphinognathus* unite with the jugal to enclose a foramen.

The quadrate is very similar to that of the Pelycosaurus. In the type it is considerably crushed and displaced.

The squamosal is large. It has a long slender ascending process which forms part of the posterior wall of the temporal fossa and meets the parietal. A descending process supports the quadrate, and an anterior meets the jugal. The upper part of the squamosal rests on a flat bone which forms part of the occiput, and which I regard as the opisthotic from a comparison with the bone in Marsupials and Cynodonts.

The frontals are large and broad and enormously thickened.

The parietals are relatively small, but like the frontals extremely thick. They enclose, as in *Delphinognathus* and *Tapinocephalus*, a large pineal foramen. The edges of the foramen are elevated, but the pineal region stands out less prominently than in *Delphinognathus*.

The occiput is moderately flat, and the condyle large and rounded. The upper side of the condyle has a deep hollow groove for the medulla, and in the middle line immediately below the medullary groove is a small deep pit which passes forward into the basioccipital for the notochord.

The palate is imperfectly known, but appears to be fairly similar to that of *Tapinocephalus*.

The lower jaw is like that of *Delphinognathus* but more fully

known. The dentary forms about half of the jaw, but owing to a slender backward process which rests on the surangular it forms about $\frac{5}{8}$ of the upper border.

The splenial is slender. The angular forms the larger part of the outer side of the posterior part of the jaw, and the slender surangular the upper third. The articular, which has two concavities for the quadrate, is a powerful bone which in front fits in between the angular and surangular on the inner side of the jaw.

The teeth are imperfectly known, but appear to be very similar to those of *Delphinognathus* and *Eccasaurus*. This type closely resembles the tooth figured by Twelvetrees and Seeley as the tooth of *Deuterosaurus*, and if these authors are right in regarding that tooth as belonging to *Deuterosaurus*, there can be no doubt that *Deuterosaurus* is a Dinocephalian closely allied to South African forms.

Suborder ANOMODONTIA.

DIELURODON WHAITSI, gen. et sp. n. (Pl. LXIII. figs. 6 & 7.)

This beautiful little Endothiodont skull was discovered by the Rev. J. H. Whaits on the Beaufort West Commonage. It is fairly complete, but the matrix is so hard that no development has been attempted. Fortunately, the skull was discovered broken into quite a number of scraps, and, but for this, it would have been regarded as belonging to a small species of *Dicynodon*. The lower jaw was, however, broken across obliquely and the fracture revealed the presence of a series of molars. A second very badly weathered specimen appears to me to belong to the same species.

The total length of the skull is 83 mm. From the beak to the front of the orbit is only 22 mm., and to the back of the orbit 41 mm., so that the orbit is entirely in the front half of the skull. The greatest width of the skull at the back part is about 50 mm. The parietal region measures 19 mm. across its narrowest part, and the frontal region is only 13 mm. across. Owing to the forward position of the orbits the facial part is relatively small and also narrow. The tusks are typically *Dicynodont*, but owing to the premaxillaries being very small, placed more forward than in *Dicynodon*.

The molars are arranged in a row like those of *Endothiodon uniseries* Owen, but a second replacing set is seen developing on the inner side of the functional teeth. There are probably about 8 teeth in use in each jaw. The crowns are not displayed in any of the teeth of the type specimen, but in the second specimen a large part of one crown is seen. It is long and slender and has coarse serrations on the anterior and posterior borders. In this the teeth agree with those of *Endothiodon*, and differ from those of *Pristerodon* and *Opisthoctenodon*.

TAOGNATHUS MEGALODON, gen. et sp. n. (Pl. LXII. figs. 2-4.)

This new genus and species is founded on an imperfect and much crushed snout found by myself on the farm Kuilspoot, Beaufort West district. Though little more than the orbital region is preserved, this specimen is manifestly very unlike any type previously known.

The frontal region is flat and moderately broad, the interorbital measurement being 16 mm. The orbit measures about 20 mm. in length.

The greater part of the dentaries is preserved but the anterior part of the beak is missing. The jaw differs from that of all previously known Anomolonts in the much longer portion covered by horn, and also in that the anterior part of the lower jaw instead of being narrower than deep, is here about twice as broad as deep.

The teeth are remarkable in that while there is a tusk it was probably relatively short, and in the lower jaw there are two large teeth each about half the size of the tusk. Not improbably there were two molars in the maxillary and two in the mandible.

The nearest ally of *Taognathus* at present known is *Prodicynodon*, but the affinity is not at all close.

OUDENODON BOLORHINUS, sp. n. (Pl. LXIII. fig. 10.)

This new species of *Oudenodon* was discovered by myself at Kuilspoot, Beaufort West district. Unfortunately, the type consists of only the preorbital portion of the skull, and this is somewhat crushed and weathered.

The most striking characteristics of the species are (1) the extreme shortness of the snout which brings the front of the palate nearly under the orbit, and (2) the thickening of the nasal bones to form a rounded boss which overhangs the nostrils.

The orbit is large and measures about 35 mm. in diameter. The borders are thickened and rounded.

The maxillary bone is short but powerful; the caniniform process being very massive. The upper part of the bone forms part of the thickened lower margin of the orbit and nearly separates the jugal from the lachrymal.

The premaxillary bone is also short and strong, and was probably as represented in the restoration.

The nasals are short but greatly thickened, forming a large median boss the sides of which overhang the nostrils.

The frontal bones are short and comparatively narrow, the interorbital region measuring about 36 mm.

The only species of *Oudenodon* which seems to come near the present one is *Oudenodon strigiceps* Owen, but this latter differs, apart from differences that may be due to crushing, in the much greater size of the nostril and in the much more backward position of the caniniform process.

Suborder THEROCEPHALIA.

ÆLUROSAURUS WHAITSI, sp. n. (Pl. LXIII. fig. 8.)

This new species of *Ælurosaurus* was obtained by Mr. Whaits at Beaufort West. *Ælurosaurus felinus* also occurs at Beaufort West on the same horizon, but the difference between the species is considerable apart from size.

The specimen consists of the greater part of the left dentary, much of each maxilla, the left premaxilla, and numerous other fragments of the skull, besides a large number of fragments of the postcranial skeleton. The skeleton is so imperfect that no long bone is entire, and most are represented by articular ends. A few imperfect vertebræ are present, and a number of disarticulated bones of the manus and pes.

The symphyseal part of the jaw makes a less obtuse angle with the lower border of the ramus than in *Ælurosaurus felinus*.

There are four lower incisors and a single large canine. In the type only the deep part of the root of the first incisor is left, so that an accurate measurement of the space occupied by these teeth is impossible. The last is situated very close to the canine. All the incisors are subequal and rounded. The canine measures 10 mm. \times 6.5 mm. at the base; the height is not shown. The molars are small and degenerate. The exact number is uncertain; three remain in the jaw, but apparently two have been shed and replaced by bony tissue. Probably the young animal had 5 molars (possibly 6). There is a large diastema of 15 mm. between the canine and what is probably the occupied position of the 1st molar, and the five molars have a space of 13 mm. From the front of the jaw to the back of the last molar is a distance of 48 mm.

The upper incisors are badly preserved, but the roots are preserved and occupy a space of 21 mm. The upper canine is large and but slightly curved; its anterior border is smooth and rounded; the posterior border is serrated. The antero-posterior measurement at the base is 11 mm.

It seems not improbable that specimen R 855 *a* in the British Museum may belong to this species.

ÆLUROSAURUS TENUIROSTRIS, sp. n. (Pl. LXIII. fig. 9.)

This species is founded on a snout collected by myself at Kuilsport. It resembles *Ælurosaurus whaitsi* very closely, but differs in that, though it is probably a rather larger form, the snout is more slender and the mandible feebler.

The five upper incisors measure 24 mm. as compared with 21 mm. in *Æ. whaitsi*, and the whole measurement from *i*¹ to *m*⁵ is 65 mm. in *Æ. tenuirostris* as compared with about 52 mm. in *Æ. whaitsi*.

Some of the lower incisors are well preserved. The first is a rounded pointed tooth with a feeble serrated ridge on its outer and posterior side. On the third incisor there is only a very slightly marked ridge, and there are no distinct serrations, though it is possible that they have been worn off by friction against

the upper teeth. The molars are better developed than in *E. whaitsi*.

The arrangement of the bones round the nostril is similar to that in *Scylacosaurus* and *Aloposaurus*.

ICTIDOGNATHUS PARVIDENS, gen. et sp. n. (Pl. LXII. fig. 5, & Pl. LXIII. fig. 11.)

This new genus is founded on a small snout found by me at Kuilspoort. It is, with the exception of *Scaloposaurus constrictus*, the smallest known Therocephalian.

From the snout to the orbit measures 46 mm., and the whole skull was probably not more than 90 mm. in length.

Owing to the weathering of the fossil, which was found in a sloat and was thus considerably water-worn, the front of the snout is badly preserved and the teeth are very imperfect. There appear to be six incisors, all of small size. There is a fair-sized canine with a very minute 1st canine in front of it. The molars are numerous. Eight are preserved and two are probably lost, possibly three. The dental formula would thus appear to be $i.^6, c.^2, m.^{10}$. The dental formula of *Scaloposaurus* was recently given by me as $i.^6, c.^3, m.^9$, the reason for believing that there are three canines being that the maxillary series begins with one minute tooth followed by two larger than any of the succeeding molars. If we regard the third tooth as a molar, the dental formula becomes the same as in *Ictidognathus*. But though the dental formulæ may be the same, there is no question but that the species must be placed in separate genera, the large canine in the present specimen sufficing to remove it from *Scaloposaurus*. The canine measures antero-posteriorly 3 mm.

ERIPHOSTOMA MICRODON, gen. et sp. n. (Pl. LXIII. fig. 12.)

This small imperfect skull was found by Mr. Whaits at Fraserburg Road. It is in two portions—a rather badly weathered snout, and an equally badly weathered occipital portion. Though the contact is missing, the two fragments can be united with fair accuracy, and the whole skull as restored measures 110 mm. in length. The snout is very flat and deep, measuring in the canine region 27 mm. in greatest width, though the snout with the lower jaw here measures 55 mm. in depth.

The incisors are long, narrow pointed teeth which are situated well to the front, and are apparently only 4 in number. Following the last incisor is a long diastema of 13 mm. corresponding to the position of the large lower canine. The canine measures 4.5 mm. in antero-posterior length. The number of molars is uncertain. Two only are preserved, and these are long, pointed, slender teeth. The number of molars must, however, have been few.

The only genera to which *Eriphostoma* is nearly related are *Ictidosaurus* and *Lycosaurus*. *Ictidosaurus angusticeps*, the only known species, was described by me in 1903 from a specimen in the South-African Museum. *Lycosaurus* was founded by Owen on

a badly weathered skull in the British Museum, which was made the type of *L. pardalis*. Unfortunately, the genus *Lycosaurus* is at present in considerable confusion owing partly to the bad condition of the type, and partly to the fact that two other species, which are not nearly related have been added to the genus.

In *Lycosaurus pardalis*, Owen determined the dental formula to be $i. \frac{3}{3}, c. \frac{1}{1}, m. \frac{5}{5}$. Lydekker not only believes *L. tigrinus* Ow. to be correctly referred to *Lycosaurus*, but thinks it is really indistinguishable from *L. pardalis*. In my opinion the two do not even belong to the same family. The dental formula of *Lycosaurus pardalis* I determine as $i. \frac{5}{5}, c. \frac{2}{2}, m. \frac{4}{4}$. The minute canine in front of the large one is a character very frequently met with in the early Therocephalians of the *Parvian* zone. The deep square symphysis with the incisor teeth carried well to the front, and the small size of the premaxillary portion are all early characters. Owen gives the locality of the type as "Sneewberg mountain-range," but this is evidently a mistake, and Lydekker in his Catalogue merely states that the specimen is from the "Karoo System of the Cape Colony." It is highly probable that the specimen came from the Gouph.

Lycosaurus tigrinus is a much later type of Therocephalian. Its dental formula is $i. \frac{5}{5}, c. \frac{1}{1}, m. \frac{4 \text{ or } 5}{4 \text{ or } 5}$. As it belongs to a different genus, I would suggest the new generic name *Arctosuchus* to contain *A. tigrinus* Owen.

Lycosaurus curvimola belongs to a still higher type of Therocephalian, which is not nearly allied either to *Lycosaurus* or to *Elurosaurus*. Its dental formula is $i. \frac{4}{4}, c. \frac{1}{1}, m. \frac{5}{5}$. I would suggest for it the new generic name *Arctognathus* to contain *A. curvimola* Owen.

Removing then these other genera and reserving *Lycosaurus* for the type-species, we get a form resembling in many characters *Eriphostoma*, but differing in being larger by a half, in having 5 incisors as against 4, and 2 canines instead of 1 as in *Eriphostoma*. *Ictidosaurus* agrees with *Lycosaurus* as regards the incisor and canine formula, but differs in having a large number of molars and a number of other cranial characters. The dental formulæ of the three genera are as follows:—

Ictidosaurus: $i. \frac{1 \ 2 \ 3 \ 4 \ 5}{1 \ 2 \ 3 \ 4 \ 5}; c. \frac{1 \ 2}{1 \ 2}; m. \frac{1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8}{1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8}$.

Lycosaurus: $i. \frac{1 \ 2 \ 3 \ 4 \ 5}{1 \ 2 \ 3 \ 4 \ 5}; c. \frac{1 \ 2}{1 \ 2}; m. \frac{1 \ 2 \ 3 \ 4}{1 \ 2 \ 3 \ 4}$.

Eriphostoma: $i. \frac{1 \ 2 \ 3 \ 4}{1 \ 2 \ 3 \ 4}; c. \frac{0 \ 2}{0 \ 2}; m. \frac{? \ ? \ ? \ ?}{? \ ? \ ? \ ?}$.

The Geological Horizons of the Beaufort West Specimens.

Some years ago I endeavoured to subdivide the Beaufort series into palæontological zones. At that time it was only possible to do so on very broad lines. The area is so extensive, and except on the upper part of the series there are no lithological characters

to correspond to the palæontological. Further, as wide areas of the Karroo are covered by wind-blown dust which forms what may be regarded as a sort of loess deposit, and the exposed portions, except in the case of escarpments, are usually isolated, it becomes a matter of extreme difficulty to connect up the various beds. The shales for a thickness of 3000 or 4000 feet present no distinguishing characters, and at present we can do little more than collect fossil specimens and note the localities.

I subdivided the Beaufort into six zones which may be grouped as follows :—

Upper Beaufort	{	6. <i>Cynognathus</i> Beds.
		5. <i>Procolophon</i> Beds.
Middle Beaufort	{	4. <i>Lystrosaurus</i> Beds.
		3. <i>Cistecephalus</i> Beds.
Lower Beaufort	{	2. <i>Endothiodon</i> Beds.
		1. <i>Pareiasaurus</i> Beds.

The *Lystrosaurus* zone probably corresponds to the Lower Triassic; the *Cynognathus* zone to the Upper Triassic. The *Pareiasaurus* beds are probably Middle Permian; the *Endothiodon* and *Cistecephalus* beds are probably Upper Permian. All work done since 1905 has gone to confirm the correctness of the conclusions then arrived at, but it has shown that we will some day be able to subdivide the zones into a large number of subsidiary zones.

The *Pareiasaurus* zone is the oldest one where fossils are numerous. *Pareiasaurus* is its most characteristic form, but there are a host of other known genera, mostly of Therocephalians. Small Anomodonts—*Dicynodon* and *Oudenodon*—are also not uncommon.

Above the *Pareiasaurus* zone we have deposits which measure about 2000 feet, principally characterised by the abundance of *Dicynodon* and *Oudenodon*. Of every six fossils obtained, five are those of *Dicynodon* or *Oudenodon*. As, however, these genera occur at all horizons of the Beaufort, it seems unwise to speak of this as the *Dicynodon* zone. I have therefore called it the *Endothiodon* zone, as *Endothiodonts* are met with throughout it and are known at no other horizon. Therocephalians are not common, but may be met with at any height. Curiously enough, with the exception of *Propappus* and *Saurosternon*, no genera are known from the *Endothiodon* zone which do not belong to the Anomodontia or the Therocephalia.

Above the *Endothiodon* zone is a zone probably not more than 1000 feet thick, which is characterised by the presence of *Cistecephalus*, and the higher types of Therocephalians. The zone is at present the least known of any part of the Beaufort, mainly because since Andrew Bain's time no collector has had an opportunity of doing much with it.

At Beaufort West, one has an opportunity of studying to advantage the *Endothiodon* zone. The township is situated on

an undulating plain which is geologically probably not more than 500 feet above the *Pareiasaurus* zone. The subzone is characterised by the presence of *Endothiodon uniseriis* Ow.,—a form that at present is not known from any other part of South Africa. In the Beaufort West district also occurs *Endothiodon bathystoma* Ow., but whether the horizon of this is above or below that of *E. uniseriis* is at present unknown.

Near Beaufort West is the escarpment of the Nieuweveld which rises a few miles north of the township to a height of 3000 feet or more, and though it is extremely difficult collecting in the steep slopes of shale, a number of forms of interest have been collected at various horizons.

As *Dicynodon* and *Oudenodon* occur at all levels, it might be thought well to subdivide the zones by the species of *Dicynodon*; but there is a serious difficulty. *Dicynodon* is the most troublesome genus we have to deal with. Specimens differ so greatly in size and shape that one hardly knows what to do unless one does as was practically done by Owen, make every specimen the type of a distinct species. For many years to come the genus *Dicynodon* must remain in utter confusion, and will be useless for stratigraphical work. On the other hand, the Therocephalians will be as reliable guides as Ammonites and Trilobites are in the marine rocks of Europe.

In the following diagram are represented the horizons of the Beaufort West types described in this paper, and of others whose horizons are known. It must, however, be understood that the heights in feet are only approximate.

2000 feet	<i>Ictidognathus parcidens</i> Br.; <i>Ælurosaurus tenuirostris</i> Br.; <i>Oudenodon holorhinus</i> Br.; <i>Cistecephalus microrhinus</i> Ow.; <i>Dicynodon</i> sp.
1500 feet	<i>Atoposaurus gracilis</i> Br. <i>Dicynodon</i> sp.
1000 feet	<i>Taognathus megalodon</i> Br.; <i>Owlenodon</i> sp.; <i>Dicynodon</i> sp.
500 feet	<i>Dicynodon</i> sp. <i>Dicynodon</i> sp.
Beaufort West horizon ...	<i>Endothiodon uniseriis</i> Ow.; <i>Dielurodon whaitsi</i> Br.; <i>Ælurosaurus whaitsi</i> Br.; <i>Scymnosaurus</i> sp.; <i>Dicynodon</i> sp.; <i>Oudenodon</i> sp. <i>Ælurosaurus</i> <i>felinus</i> Ow.

It may be well to regard the *Endothiodon* zone as reaching 1600 feet above Beaufort West, and then passing into the *Cistecephalus* zone.

EXPLANATION OF THE PLATES.

PLATE LXII.

- Fig. 1. Side view of skull of *Moschops capensis* Broom. $\frac{2}{3}$ nat. size. *Ang.* Angular; *Art.* Articular; *Ju.* Jugal; *O.O.* Opisthotic; *Qu.* Quadrate; *Q.J.* Quadrato-jugal; *S.Ang.* Surangular; *S.m.x.* Septomaxillary; *Sq.* Squamosal.
 2. Front part of skull of *Taognathus megalodon* Broom. Nat. size.
 3. Under view of lower jaw of *Taognathus megalodon* Broom. Nat. size. The canine of the right side is seen in oblique section.
 4. Section across lower jaw of *Taognathus megalodon* Broom. Nat. size.
 5. Upper view of snout of *Ictidognathus parvidens* Broom. Nat. size.

PLATE LXIII.

- Fig. 6. Side view of skull of *Dialurodon whaitsi* Broom. Nat. size.
 7. Section across lower jaw of *Dialurodon whaitsi* Broom, at the crack indicated in figure 6. Nat. size.
 8. Upper view of mandible of *Elurosaurus whaitsi* Broom. Nat. size.
 9. Side view of snout of *Elurosaurus tenuirostris* Broom. $\frac{5}{8}$ nat. size.
 10. Side view of snout of *Oudenodon bolorhinus* Broom. $\frac{2}{3}$ nat. size.
 11. Side view of snout of *Ictidognathus parvidens* Broom. Nat. size.
 12. Side view of snout of *Eriphostoma microdon* Broom. $\frac{2}{3}$ nat. size.

52. On a new Tree-Frog from Trinidad, living in the Society's Gardens. By EDWARD G. BOULENGER, Curator of Reptiles to the Society*.

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(Plate LXIV.†)

In July last the Zoological Society received from Dr. Lewis H. Gough an interesting collection of Batrachians and Reptiles brought back by him from Trinidad. Among these I found examples of three frogs which had not been previously recorded from Trinidad, viz.: *Hyla venulosa* Daud., *Hyla rubra* Daud., and one which is evidently undescribed, and for which I propose the name of *Hyla goughi*, after its discoverer. This little *Hyla*, one of the smallest of the genus, was fortunately represented by numerous specimens, which have enabled me to observe the wide and rapid changes of colour which this species undergoes, and of which an idea can be gained from the annexed coloured plate made by Mr. J. Green at the Gardens under my direction.

HYLA GOUGHII, sp. n. (Pl. LXIV.)

Tongue circular, slightly nicked and slightly free behind. Vomerine teeth in two rounded groups between the choanæ. Head slightly broader than long; snout rounded, a little shorter than the eye, which is large and very prominent. Canthus rostralis feebly marked. Loreal region very slightly concave.

* Communicated by the Secretary.

† For explanation of the Plate see p. 1083.